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Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-387



KC-46A Tanker Modernization (KC-46A)

As of FY 2019 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

UNCLASSIFIED

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Sensitivity Originator

No originator info Available at this time.

Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance
ACAT - Acquisition Category
ADM - Acquisition Decision Memorandum
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
\$B - Billions of Dollars
BA - Budget Authority/Budget Activity
Blk - Block
BY - Base Year
CAPE - Cost Assessment and Program Evaluation
CARD - Cost Analysis Requirements Description
CDD - Capability Development Document
CLIN - Contract Line Item Number
CPD - Capability Production Document
CY - Calendar Year
DAB - Defense Acquisition Board
DAE - Defense Acquisition Executive
DAMIR - Defense Acquisition Management Information Retrieval
DoD - Department of Defense
DSN - Defense Switched Network
EMD - Engineering and Manufacturing Development
EVM - Earned Value Management
FOC - Full Operational Capability
FMS - Foreign Military Sales
FRP - Full Rate Production
FY - Fiscal Year
FYDP - Future Years Defense Program
ICE - Independent Cost Estimate
IOC - Initial Operational Capability
Inc - Increment
JROC - Joint Requirements Oversight Council
\$K - Thousands of Dollars
KPP - Key Performance Parameter
LRIP - Low Rate Initial Production
\$M - Millions of Dollars
MDA - Milestone Decision Authority
MDAP - Major Defense Acquisition Program
MILCON - Military Construction
N/A - Not Applicable
O&M - Operations and Maintenance
ORD - Operational Requirements Document
OSD - Office of the Secretary of Defense
O&S - Operating and Support
PAUC - Program Acquisition Unit Cost

PB - President's Budget
PE - Program Element
PEO - Program Executive Officer
PM - Program Manager
POE - Program Office Estimate
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
SCP - Service Cost Position
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting
U.S. - United States
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

Program Information

Program Name

KC-46A Tanker Modernization (KC-46A)

DoD Component

Air Force

Responsible Office

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Date Assigned: February 8, 2016

References

SAR Baseline (Production Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 13, 2017

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated January 13, 2017

Mission and Description

The KC-46A Tanker Modernization (KC-46A) will replace the U.S. Air Force's aging fleet of Tankers which have been the primary refueling aircraft for more than 50 years. The KC-46A will have enhanced refueling capabilities with greater capacity, and both cargo and aeromedical evacuation with improved efficiency and increased capabilities. The KC-46A will provide aerial refueling support to the United States Air Force, Navy, and Marine Corps, as well as allied nation coalition aircraft.

The KC-46A will have the ability to refuel any fixed-wing receiver capable aircraft on any mission. The KC-46A will be equipped with a modernized KC-10 refueling boom integrated with a fly-by-wire control system, and will be capable of delivering a fuel offload rate required for large aircraft. Furthermore, a hose and drogue system will add additional mission capability which will be independently operable from the refueling boom system. The centerline drogue and wing aerial refueling pods (WARPs) will be used to refuel aircraft fitted with probes. All KC-46A aircraft will be configured for the installation of a Multi-Point Refueling System capable of refueling two receiver aircraft simultaneously from the WARPs mounted under the wings. One Aerial Refueling Operator will control the boom, centerline drogue, and WARPs during refueling operations. Panoramic displays will provide the Aerial Refueling Operator with wing-tip to wing-tip situational awareness.

A cargo deck above the refueling system will accommodate a mixed load of passengers, patients, and cargo. The KC-46A will carry up to eighteen 463L cargo pallets. Seat tracks and the onboard cargo handling system will make it possible to simultaneously carry palletized cargo, seats, and patient support pallets in a variety of combinations. The KC-46A will offer significantly increased cargo and aeromedical evacuation capabilities compared to the KC-135R.

The aircrew compartment will include 15 permanent seats for aircrew, which will include permanent seating for the Aerial Refueling Operators and an optional Aerial Refueling Instructor.

Two high-bypass turbofans, mounted under 34-degree swept wings, will power the KC-46A to take off at gross weights up to 415,000 pounds.

Executive Summary

Program Highlights Since Last Report

The EMD contract is 92.5% complete. Government funding has been stable with no government-driven engineering changes to the design. Delays and schedule pressures notwithstanding, the KC-46A program and strategy remain strong and the government's maximum liability on the EMD contract with Boeing remains capped at the ceiling price of \$4.9B.

Negotiations on consideration due from Boeing for missing Required Assets Available were conducted in January 2017 and a Memorandum of Agreement detailing negotiation results was signed on March 23, 2017. Formal incorporation of the negotiation results via a contract modification will be completed by Spring 2018.

Between January 2017 and October 2017, EMD-1 continued to perform Federal Aviation Administration (FAA) Certification flight testing. During this time, EMD-1 completed autoland, aerodynamic stability and control, propulsion and fuels testing and completed its final planned test flight in late October 2017. EMD-1 has been placed in storage awaiting refurbishment and KC-46A finishing work in mid-2018. In April 2017, EMD-2 received a new refueling boom and reentered boom flight testing. EMD-2 then completed ground fuels testing in June 2017 as a prerequisite to begin aerial refueling system certifications starting in October 2017 and continuing through the rest of the year. EMD-3 started the year in the KC-46A finishing center and conducted its first flight in the KC-46A configuration on May 18, 2017. After this, it continued to perform flight test including hot weather testing in Yuma, Arizona, ramp noise testing at the Naval Air Station, Key West, Florida, and cold weather testing in Fairbanks, Alaska. During 2017, EMD-4 completed a cooperative vulnerability assessment on the KC-46A information systems as well as precipitation static, covert lighting, and radar warning receiver testing. On October 7, 2017, EMD-4 conducted the first boom system certification flight with a C-17 and continued to perform aerial refueling certification testing with the F-16, A-10, and F/A-18 for the remainder of the year. LRIP 1-1 completed its final block of 767-2C configuration testing in February 2017 and was converted in to a KC-46A for additional flight test. LRIP 1-1 resumed flight test in KC-46A configuration in November 2017 and completed extended operations testing including a deployment to Guam. LRIP 1-2 conducted its first KC-46A configured flight on April 29, 2017, then conducted electromagnetic effects testing between May 2017 and August 2017. Afterwards, LRIP 1-2 conducted firefighting ground tests while supporting technical order certification and verification activities, and Type 1 Maintenance training. On December 21, 2018, FAA issued KC-46A an Amended Type Certificate.

All ten Live Fire Test and Evaluation ballistic test series are complete. Final ballistic test reports were delivered in December 2017. The draft consolidated report is projected to be completed by May 2018. The team also continues thermal curtain test planning, an inherent hardness assessment, and base escape study to assess aircraft survivability to nearby nuclear warhead detonation. These tests and analyses will ensure the KC-46A can support the nuclear mission.

Thirty four aircraft are on contract. The first production aircraft conducted contractor flights in December 2017 and has returned to the production facility to continue remaining Line Replaceable Unit installations and tests to complete KC-46A conversion. It will begin the formal aircraft acceptance process once all design certifications are received and applicable EMD requirements are met. Boeing and the Production Team are currently conducting negotiations on Lot 4 (15 aircraft with associated spares/support equipment), with a goal to award in Spring 2018.

Overall, the aircraft development flight test program is 74% complete. Boeing is working to complete clearance paperwork with the FAA in order to open up additional test points for data collection flights. These flights will lead to eventual award of the Supplemental Type Certificate, and Military Type Certificate; as well as the closure of System Verification Review. Finally, the program is readying to begin tanker-receiver pair certification testing required to enter into Initial Operational Test and Evaluation.

The Aircrew Training Systems program completed in-plant regression testing in October 2017, resulting in FlightSafety passing their Ready To Ship assessment on the first EMD Fuselage Trainer, Weapon System Trainer, and Boom Operator Trainers, marking a major milestone completion for the program. On-site government test activities will commence in the new calendar year, as planned. The program remains on track to reach red item capability for Small Group Try Out start in April 2018 and Ready For Training date in August 2018.

The KC-46 Maintenance Training System program completed the last two subsystem Preliminary Design Reviews with no major issues and all Critical Design Reviews (CDRs) were rescheduled. The team successfully met with Boeing in early February 2018 to work initial Interactive Multimedia Instruction (IMI) test planning and to verify IMI CDR criteria compliance. Boeing held a quarterly Program Management Review on February 8, 2018. CDR for the IMI remains on schedule for February 19-23, 2018. Remaining training device CDRs are scheduled between March 2018 and June 2018 and the maintenance training Ready for Training date is currently projected for September 2018.

The government program team is closely tracking Boeing's progress on three issues which add risk to the program schedule: 1) Flight test execution, 2) FAA airworthiness certifications, and 3) the closure plan of Category 1 Deficiency Report.

Program execution will be carefully managed to ensure Boeing delivers what is required by the contract and the Government maintains the competitively-negotiated program cost, schedule, and performance baselines.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
February 2011	The USD(AT&L) conducted a successful Milestone B DAB.
February 2011	The USD(AT&L) signed the APB reflecting the Milestone B approval.
February 2011	The Boeing Company was awarded the KC-46A contract. The Fixed-Price Incentive Firmcontract was awarded for the EMD program phase, with Firm-Fixed-Price contract options for Low Rate Initial Production Lots 1 and 2, and Not-to-Exceed contract options with Economic Price Adjustment for Full Rate Production Lots 3 through 13.
August 2011	The KC-46A Program Office and Boeing successfully concluded a comprehensive Integrated Baseline Review (IBR). The IBR approved a well-understood contract technical, cost, and schedule baseline from which the Government can measure and closely manage Boeing's progress during contract execution.
November 2011	The KC-46A Program Office and Boeing successfully concluded the System Functional Review (SFR). The KC-46A SFR assessed the allocation and traceability of all program requirements from the System Specification to lower-level hardware and software requirements.
December 2011	Boeing conducted a non-contractual KC-46A Firm Configuration review—an internal Boeing commercial best practice. The KC-46A Firm Configuration validated that the aircraft configuration is sufficiently mature and stable to initiate detailed design of the militarized KC-46A tanker.
April 2012	The KC-46A Preliminary Design Review (PDR) was successfully completed. The Government and Boeing successfully completed the first step of a two-step PDR process on March 21 -22, 2012, which consisted of a detailed review of the 89 contractual entrance criteria to PDR. The second step, conducted April 23 - 27 2012, consisted of a detailed review of the eight exit criteria and completion of all subsystem PDRs to Government satisfaction.
May 2012	The PEO signed the Post-PDR Report.
June 2012	Deputy Assistant Secretary of Defense, Systems Engineering, validated successful completion of PDR.
May 2013	The KC-46A Aircrew Training System (ATS) contract was awarded to FlightSafety Services Corporation.
June 2013	The KC-46A ATS Program conducted a Program Startup Workshop with the assistance from Defense Acquisition University at Wright-Patterson Air Force Base, Ohio.
June 2013	The KC-46A Operational Assessment-1 report was published, culminating a 7.5 month effort to assess the current weapon system design for Critical Design Review (CDR) and Initial Operational Test& Evaluation (IOT&E) for readiness. The Air Force Operational Test and Evaluation Center assessment of the KC-46A confirmed that the program was on track to meet effectiveness, suitability, and mission capability requirements.
June 2013	The EMD-1 aircraft began assembly, followed by EMD-2 on August 19, 2013, EMD-3 on October 17, 2013, and EMD-4 on January 16, 2014.
July 2013	The KC-46A Program successfully completed the planned Weapon System CDR at Boeing's Harbour Pointe facility. Overall design maturity was demonstrated to be at a high level, consistent with the commercial derivative nature of the design approach. All action items were complete, and the Weapon System CDR was officially closed on August 21, 2013, one month ahead of the contractual requirement of September 24, 2013.
September 2013	The KC-46A ATS conducted a System Requirement Review and SFR.
February 2014	The KC-46A Program Office received confirmation that the Senate Committee on Appropriations

	approved a below threshold reprogramming request in the amount of \$8.6M to purchase land necessary for the Tinker Air Force Base, Oklahoma weapon system support efforts. This request resulted in FY 2012 MILCON (3300) funds being reprogrammed into the KC-46A funding profile.
December 2014	KC-46A Production Spares, Support Equipment, and Interim Contractor Support efforts awarded.
December 2014	Successful first flight of the EMD-1 aircraft. This significant event started the flight test phase of the KC-46A program.
September 2015	EMD-2 completed a major milestone, KC-46A First Flight.
November 2015	EMD-2 deployed the boom and both drogue systems in flight for the first time.
January 2016	EMD-2 completed the first KC-46A aerial refueling by offloading 1,600 pounds of fuel to an F-16C.
February 2016	EMD-2 completed fuel transfer with F/A-18 aircraft.
February 2016	EMD-2 completed KC-10 fuel transfer conducted with KC-46A as a receiver.
May 2016	MDA notified of Milestone B APB schedule breach to IOT&E Start.
June 2016	KC-46A ATS successfully completed full system CDR.
July 2016	The KC-46A Maintenance Training System contract was awarded to The Boeing Company.
July 2016	EMD-4 completed fuel transfer to the F-16C, C-17A, and A-10C aircrafts with the boom axial load fix in place.
August 2016	Program accomplished Milestone C.
August 2016	Awarded Lots 1 and 2; totaling 19 aircraft.
December 2016	Boeing delivered new KCR-0800 schedule, Required Assets Available slipped to October 2018.
January 2017	Lot 3 (15 aircraft) awarded January 27, 2017.
November 2017	Lot 5 conversion from FRP to LRIP lot.
November 2017	KC-46A delegated to ACAT IC program.
December 2017	FAA issued KC-46A Amended Type Certificate.
December 2017	Awarded Japan FMS contract.

Threshold Breaches

APB Breaches

Schedule		<input type="checkbox"/>
Performance		<input type="checkbox"/>
Cost	RDT&E	<input type="checkbox"/>
	Procurement	<input type="checkbox"/>
	MILCON	<input type="checkbox"/>
	Acq O&M	<input type="checkbox"/>
O&S Cost		<input type="checkbox"/>
Unit Cost	PAUC	<input type="checkbox"/>
	APUC	<input type="checkbox"/>

Nunn-McCurdy Breaches

Current UCR Baseline		
	PAUC	None
	APUC	None
Original UCR Baseline		
	PAUC	None
	APUC	None

Schedule



Schedule Events					
Events	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	
Milestone B and Contract Award	Feb 2011	Feb 2011	Feb 2011	Feb 2011	
Milestone C	Aug 2016	Aug 2016	Aug 2016	Aug 2016	
IOT&E Start	Nov 2017	Nov 2017	Aug 2018	Aug 2018	(Ch-1)
RAA	Oct 2018	Oct 2018	May 2019	Feb 2019	(Ch-2)
FRP Decision	Aug 2019	Aug 2019	May 2020	May 2020	(Ch-3)

Change Explanations

(Ch-1) The current estimate for IOT&E Start has changed from January 2018 to August 2018 due to delays in FAA certifications of first aircraft delivery.

(Ch-2) The current estimate for RAA has changed from October 2018 to February 2019 due to delays in FAA certifications of first aircraft delivery.

(Ch-3) The current estimate for FRP has changed from November 2019 to May 2020 due to delays in FAA certifications of first aircraft delivery.

Notes

IOT&E Start represents the beginning of Dedicated IOT&E, which will commence upon the Air Force Program Executive Officer for Tankers approval of the Operational Test Readiness Review.

The RAA date is defined as 18 aircraft in final production configuration, two spare engines, and nine ship sets of wing aerial refueling pods.

The IOT&E and FRP threshold dates are nine months beyond the respective objective dates and the RAA date is seven months beyond the respective objective date based on KC-46A Program Office schedule analysis of the contractor trends and past performance, to include risks.

Acronyms and Abbreviations

FAA - Federal Aviation Administration

IOT&E - Initial Operational Test and Evaluation

RAA - Required Assets Available

Performance

Performance Characteristics				
SAR Baseline Production Estimate	Current APB Production Objective/Threshold	Demonstrated Performance	Current Estimate	
Tanker Air Refueling Capability				
The aircraft should be capable of accomplishing air refueling of all current and programmed fixed-wing and tilt rotor receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A should be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing and tilt rotor receiver aircraft.	The aircraft should be capable of accomplishing air refueling of all current and programmed fixed-wing and tilt rotor receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A should be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing and tilt rotor receiver aircraft.	The aircraft shall be capable of accomplishing air refueling of all current and programmed fixed-wing receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A shall be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing receiver aircraft.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Threshold. The aircraft shall be capable of accomplishing air refueling of all current and programmed fixed-wing receiver aircraft in accordance with technical guidance and STANAGs using current procedures and refueling airspeeds with no modification to existing receiver air refueling equipment and no restrictions to the refueling envelope. The aircraft shall be able to effectively conduct (non-simultaneously) both boom and drogue air refuelings on the same mission. While engaged, the KC-46A shall be capable of maneuvering throughout the entire refueling envelope, in accordance with applicable air refueling manuals and standard agreements, of any compatible current and programmed fixed wing receiver aircraft.

(Ch-1)

Fuel Offload versus Radius

The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1; exceed offload/radius as depicted in Figure 5.1. Radius is defined as standard day takeoff, fly to the AR track, orbit for one hour, offload fuel, and return to original base with required reserve fuel. Aircraft should operate with maximum fuel efficiency within current aviation technology, without any degradation to mission/aircraft performance.	The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1; exceed offload/radius as depicted in Figure 5.1. Radius is defined as standard day takeoff, fly to the AR track, orbit for one hour, offload fuel, and return to original base with required reserve fuel. Aircraft should operate with maximum fuel efficiency within current aviation technology, without any degradation to mission/aircraft performance.	The aircraft shall be capable, as a minimum, of an offload versus radius as depicted in Figure 5.1. Radius is defined as standard day takeoff, fly to the AR track, orbit for one hour, offload fuel, and return to original base with required reserve fuel. Aircraft should operate with maximum fuel efficiency within current aviation technology, without any degradation to mission/aircraft performance.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. The aircraft should be capable of exceeding the offload versus radius as depicted in Figure 5.1.	(Ch-1)
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Civil/Military CNS/ATM

Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.	Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.	(T=O) Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. Aircraft shall be capable of worldwide flight operations at all times in all civil and military airspace at time of aircraft delivery, including known future CNS/ATM requirements, with redundant systems. Capability to inhibit CNS/ATM emissions and prohibit transmission of CNS/ATM-related data accumulated during the inhibited portion of the mission. Civil ATC data link media for LOS and BLOS communications.	(Ch-1)
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Airlift Capability

The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	(T=O) The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.	Completed the ground mobility demonstration, proving the ability to accommodate various configurations of 463L pallets, aero-medical patient support pallets, and passenger pallets. The ability to use material handling equipment and processes employed by AMC on other airlift aircraft was also completed. With only minor issues encountered, KC-46A meets its cargo handling and interior configuration requirements for Milestone C. Demonstrated ability to use material handling equipment and processes employed by AMC on other airlift aircraft.	Will meet or exceed Current APB Objective. The aircraft shall be capable of efficiently transporting equipment and personnel and fit seamlessly into the Defense Transportation System. The aircraft's entire main cargo deck must be convertible to an all cargo configuration that accommodates 463L pallets, an all passenger configuration (plus baggage) (or equivalent AE capability to include ambulatory and/or patient support pallets), and must optimize a full range of palletized cargo, passengers, and AE configurations that fully and efficiently utilize all available main deck space.
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Receiver Air Refueling Capability

The aircraft must be capable of receiver air refueling (IAW current technical directives) to its maximum inflight gross weight from any compatible tanker aircraft using current air refueling procedures.	The aircraft must be capable of receiver air refueling (IAW current technical directives) to its maximum inflight gross weight from any compatible tanker aircraft using current air refueling procedures.	The aircraft must be capable of receiver air refueling (IAW current technical directives) from any compatible tanker aircraft using current air refueling procedures.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. The aircraft must be capable of receiver air refueling (IAW current technical directives) to its maximum inflight gross weight from any compatible tanker aircraft using current air refueling procedures.
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(Ch-1)

Force Protection

Aircraft shall be able to operate in chemical and biological environments.	Aircraft shall be able to operate in chemical and biological environments.	(T=O) Aircraft shall be able to operate in chemical and biological environments.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. Aircraft shall be able to operate in chemical and biological environments.	(Ch-1)
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Net-Ready

The KC-46 Program Office will provide installed performance values to the Joint Interoperability Test Command at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.	The KC-46 Program Office will provide installed performance values to the Joint Interoperability Test Command at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.	(T=O) The KC-46 Program Office will provide installed performance values to the Joint Interoperability Test Command at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. The KC-46 Program Office will provide installed performance values to the JITC at the Operational Test Readiness Review upon completion of developmental testing and evaluation. These installed performance values will facilitate JITC's joint interoperability certification during Initial Operational Testing and Evaluation. The NR-KPP shall be satisfied following a performance assessment of the system capability as defined in the CPD NR-KPP attribute table.	(Ch-1)
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Survivability

Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B. SPM shall	Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B. SPM shall	(T=O) Aircraft Self-Protection Measures (SPM). Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-3.22B.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At	Will meet or exceed Current APB Threshold. Tanker aircraft shall be able to operate in hostile environments as discussed in section 2 and AFTTP 3-	(Ch-1)
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<p>provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3 -1, Vol 22, AF Tactics, Training, Procedures (U), Jun 03 (S//NF). The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical</p>	<p>provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3 -1, Vol 22, AF Tactics, Training, Procedures (U), Jun 03 (S//NF). The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical</p>	<p>SPM shall provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated 25 Jan 2001. SPM shall provide automated protection against radio frequency (RF) threats as described in the Advanced Situational Awareness and Countermeasures (ASACM) CDD, 22 May 06, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3 -1, Vol 22, AF Tactics, Training, Procedures (U), Jun 03 (S//NF). The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical</p>	<p>completion, we will provide demonstrated performance for KPP.</p>	<p>3.22B. SPM shall provide automated protection against IR threats as described in AMC Annex to LAIRCM ORD 314-92 dated January 25, 2001. SPM shall provide automated protection against RF threats as described in the ASACM CDD, May 22, 2006, with the exception of Reduction in Lethality values in Table 28. Aircraft shall have the capability to receive off-board situational awareness data, correlate this data with on-board sensor data, display battle-space information to provide situational awareness, and assist in using countermeasures and DS to avoid potential threats as discussed in ASACM CDD. The aircraft system shall support use of existing night vision devices and laser eye protection devices. KC-46A must be capable of flying tanker tactical profiles as specified in MCM 3-1, Vol 22, AF Tactics, Training, Procedures (U), June 2003 (S//NF). The aircraft shall be capable of takeoff, landing, and air refueling, as a tanker and receiver in an NVIS environment. The KC-46A fleet shall have EMP protection for flight-critical aircraft</p>
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aircraft systems.	aircraft systems.	aircraft systems.		systems.	
Simultaneous Multi-Point Refuelings					
The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	(T=O) The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed Current APB Objective. The aircraft shall be provisioned (including structural modifications, plumbing, electrical, etc.) for simultaneous multi-point drogue refueling.	(Ch-1)
Operational Availability					
Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80% and 89%.	Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80% and 89%.	Operational Availability (Ao) rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals total aircraft inventory (TAI) less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Operational availability shall not be less than 80%.	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide demonstrated performance for KPP.	Will meet or exceed APB Objective. Ao rate will be used as a primary, capstone measure for reliability, maintainability, availability and supportability. Ao measures the percent of aircraft available for tasking. Ao equals TAI less the number of depot possessed aircraft (including scheduled and unscheduled depot maintenance) less the number of aircraft that are not mission capable divided by TAI. Ao shall not be less than 80% and 89%.	(Ch-1)
Reliability and Maintainability					
Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and	Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and	(T=O) Reliability and Maintainability (R&M) shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and	SVR is underway and projected to complete in CY 2018. The AF is verifying the system meets technical requirements. At completion, we will provide	R&M shall be sufficient to generate, deploy, operate, sustain and recover the tanker in the conduct of operations to levels and degrees of readiness and performance as prescribed in 6.6.3	(Ch-1)

performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	performance as prescribed in 6.6.3 and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.	demonstrated performance for KPP.	and 6.6.4. The aircraft will be designed with ease of maintenance, improved diagnostics and system reliability to minimize the support required.
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Requirements Reference

CPD for KC-135 Replacement Aircraft (KC-46A), R4.4. Approved by JROC Memorandum (023-16), dated April 21, 2016

Change Explanations

(Ch-1) Demonstrated performance value changed from TBD to current statement to reflect the status of pre-demonstration activities.

Notes

The Tanker AR Capability KPP objective requires the air refueling of all current and programmed fixed-wing receiver aircraft and the air refueling of all current and programmed tilt-rotor receiver aircraft. The ability to refuel at a maximum in-flight gross weight portion of this KPP objective was not included as one of the contractually-required 372 mandatory requirements.

Figure 5.1, as referenced in the objective and threshold values, is located in the CPD.

The KC-46A CPD references five KSAs. To maintain alignment with the approved Milestone B APB, only two have been referenced in the Milestone C update.

Acronyms and Abbreviations

AE - Aeromedical Evacuation
AF - Air Force
AFTTP - Air Force Tactics, Techniques, and Procedures
AMC - Air Mobility Command
Ao - Operational Availability
AR - Aerial Refueling
ASACM - Advanced Situational Awareness and Countermeasures
ATC - Air Traffic Control
ATO - Approval to Operate
BLOS - Beyond Line of Sight
BR - Break Rate
CNS/ATM - Communication Navigation Surveillance/Air Traffic Management
DAA - Designated Approval Authority
DISR - DoD IT Standards Registry
EMP - Electromagnetic Pulse
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Authority to Operate
IAW - In Accordance With
IR - Infrared
IT - Information Technology
JCIDS - Joint Capabilities Integration and Development System
JITC - Joint Interoperability Test Command
KIP - Key Interface Profile
LAIRCM - Large Aircraft Infrared Countermeasures
LOS - Line of Sight
MCM - Multi-Command Manual
NCOW RM - Net Centric Operations Warfare Reference Model
NR - Net Ready
NVIS - Night Vision and Imaging Systems
OA - Operational Availability
R&M - Reliability and Maintainability
RF - Radio Frequency
SPM - Self-Protection Measures
STANAGs - Standard Agreements
SVR - System Verification Review
TAI - Total Aircraft in the Inventory
TV - Technical View
Vol - Volume

Track to Budget

RDT&E

Appn	BA	PE	
Air Force	3600	07	0401221F
	Project	Name	
	674927	KC-135 Replacement Tanker (Sunk)	
Air Force	3600	05	0605221F
	Project	Name	
	655271	KC-46 RDT&E	

Procurement

Appn	BA	PE	
Air Force	3010	06	0401221F
	Line Item	Name	
	000999	Initial Spares (Shared)	
Air Force	3010	02	0401221F
	Line Item	Name	
	KC046A	KC-46A Tanker	

Notes

In the FY 2016 PB, Procurement funds for Initial Spares were realigned from BA 02 to BA 06. A new funding line for BA 06 was added to the Track to Budget.

MILCON

Appn	BA	PE	
Air Force	3300	01	0401221F
	Project	Name	
	VARIOUS	KC-46, MILCON	
Air Force	3730	01	0501221F
	Project	Name	
	VARIOUS	KC-46A Air Force Reserve (AFR) MILCON (Sunk)	
Air Force	3830	01	0501413F
	Project	Name	
	VARIOUS	KC-46, Air National Guard (ANG), MILCON (Sunk)	

Cost and Funding

Cost Summary

Total Acquisition Cost							
Appropriation	BY 2016 \$M			BY 2016 \$M	TY \$M		
	SAR Baseline Production Estimate	Current APB Production Objective/Threshold		Current Estimate	SAR Baseline Production Estimate	Current APB Production Objective	Current Estimate
RDT&E	6054.7	6054.7	6660.2	6124.8	5897.7	5897.7	5978.1
Procurement	30897.3	30897.3	33987.0	30560.9	35494.1	35494.1	34952.4
Flyaway	--	--	--	25159.3	--	--	28830.2
Recurring	--	--	--	25159.3	--	--	28830.2
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	5401.6	--	--	6122.2
Other Support	--	--	--	2748.2	--	--	3103.5
Initial Spares	--	--	--	2653.4	--	--	3018.7
MILCON	2577.1	2577.1	2834.8	2535.3	2966.7	2966.7	2887.9
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	39529.1	39529.1	N/A	39221.0	44358.5	44358.5	43818.4

Current APB Cost Estimate Reference

Milestone C SCP Addendum dated August 26, 2016

Cost Notes

In accordance with Section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Total Quantity			
Quantity	SAR Baseline Production Estimate	Current APB Production	Current Estimate
RDT&E	4	4	4
Procurement	175	175	175
Total	179	179	179

Cost and Funding

Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	5697.2	93.8	74.7	64.6	20.7	13.4	13.7	0.0	5978.1
Procurement	6426.8	2959.1	2924.9	3096.3	3074.6	3011.6	3081.3	10377.8	34952.4
MILCON	642.0	280.3	178.0	26.0	447.0	249.0	254.0	811.6	2887.9
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2019 Total	12766.0	3333.2	3177.6	3186.9	3542.3	3274.0	3349.0	11189.4	43818.4
PB 2018 Total	12970.1	3333.1	3309.5	3193.8	3568.4	3299.4	3474.9	11405.8	44555.0
Delta	-204.1	0.1	-131.9	-6.9	-26.1	-25.4	-125.9	-216.4	-736.6

Funding Notes

The final production for the KC-46A Program is 179 aircraft. Four of these aircraft are funded with RDT&E dollars and the quantities are identified in FY 2011 in the table below, as this is where the contract was awarded. The remaining aircraft are to be purchased using Procurement funds.

Adjustments not reflected in FY 2019 PB Automated Budget Interactive Data Environment System:

RDT&E FY 2017: \$85.0M of Program Budget Authority withdrawn pending rescission - currently on Air Force (AF) withhold. In addition, the Program Office has identified \$4.801M to source AF Urgent Operational Needs 1415.

Procurement: \$31.1M of FY 2017 Program Budget Authority withdrawn pending rescission - currently on AF withhold. In addition, the Program Office has identified \$4.830M of FY 2016 funding to source a reprogramming action for Munitions Procurement (Joint Direct Attack Munition/Advanced Precision Kill Weapon System).

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	4	0	0	0	0	0	0	0	0	4
Production	0	34	15	15	15	15	15	15	51	175
PB 2019 Total	4	34	15	15	15	15	15	15	51	179
PB 2018 Total	4	34	15	15	15	15	15	15	51	179
Delta	0	0	0	0	0	0	0	0	0	0

Cost and Funding

Annual Funding By Appropriation

Annual Funding							
3600 RDT&E Research, Development, Test, and Evaluation, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2005	--	--	--	--	--	--	10.2
2006	--	--	--	--	--	--	10.1
2007	--	--	--	--	--	--	67.8
2008	--	--	--	--	--	--	16.7
2009	--	--	--	--	--	--	17.8
2010	--	--	--	--	--	--	305.1
2011	--	--	--	--	--	--	538.9
2012	--	--	--	--	--	--	818.9
2013	--	--	--	--	--	--	1550.3
2014	--	--	--	--	--	--	1496.0
2015	--	--	--	--	--	--	548.2
2016	--	--	--	--	--	--	105.7
2017	--	--	--	--	--	--	211.5
2018	--	--	--	--	--	--	93.8
2019	--	--	--	--	--	--	74.7
2020	--	--	--	--	--	--	64.6
2021	--	--	--	--	--	--	20.7
2022	--	--	--	--	--	--	13.4
2023	--	--	--	--	--	--	13.7
Subtotal	4	--	--	--	--	--	5978.1

Annual Funding								
3600 RDT&E Research, Development, Test, and Evaluation, Air Force								
Fiscal Year	Quantity	BY 2016 \$M						
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program	
2005	--	--	--	--	--	--	--	12.2
2006	--	--	--	--	--	--	--	11.7
2007	--	--	--	--	--	--	--	76.8
2008	--	--	--	--	--	--	--	18.5
2009	--	--	--	--	--	--	--	19.5
2010	--	--	--	--	--	--	--	330.2
2011	--	--	--	--	--	--	--	572.5
2012	--	--	--	--	--	--	--	855.0
2013	--	--	--	--	--	--	--	1591.9
2014	--	--	--	--	--	--	--	1515.2
2015	--	--	--	--	--	--	--	549.8
2016	--	--	--	--	--	--	--	104.5
2017	--	--	--	--	--	--	--	205.4
2018	--	--	--	--	--	--	--	89.6
2019	--	--	--	--	--	--	--	70.1
2020	--	--	--	--	--	--	--	59.4
2021	--	--	--	--	--	--	--	18.7
2022	--	--	--	--	--	--	--	11.9
2023	--	--	--	--	--	--	--	11.9
Subtotal	4	--	--	--	--	--	--	6124.8

Annual Funding							
3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2014	--	--	--	--	--	9.5	9.5
2015	7	1149.3	--	--	1149.3	306.8	1456.1
2016	12	1753.2	--	--	1753.2	318.4	2071.6
2017	15	2363.8	--	--	2363.8	525.8	2889.6
2018	15	2308.3	--	--	2308.3	650.8	2959.1
2019	15	2225.9	--	--	2225.9	699.0	2924.9
2020	15	2385.8	--	--	2385.8	710.5	3096.3
2021	15	2590.3	--	--	2590.3	484.3	3074.6
2022	15	2567.8	--	--	2567.8	443.8	3011.6
2023	15	2598.7	--	--	2598.7	482.6	3081.3
2024	15	2586.8	--	--	2586.8	451.9	3038.7
2025	15	2587.1	--	--	2587.1	485.0	3072.1
2026	15	2582.4	--	--	2582.4	409.2	2991.6
2027	6	1130.8	--	--	1130.8	144.6	1275.4
Subtotal	175	28830.2	--	--	28830.2	6122.2	34952.4

Annual Funding							
3010 Procurement Aircraft Procurement, Air Force							
Fiscal Year	Quantity	BY 2016 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2014	--	--	--	--	--	9.4	9.4
2015	7	1126.6	--	--	1126.6	300.8	1427.4
2016	12	1690.4	--	--	1690.4	307.0	1997.4
2017	15	2239.8	--	--	2239.8	498.3	2738.1
2018	15	2142.3	--	--	2142.3	604.1	2746.4
2019	15	2026.3	--	--	2026.3	636.3	2662.6
2020	15	2129.4	--	--	2129.4	634.1	2763.5
2021	15	2266.6	--	--	2266.6	423.7	2690.3
2022	15	2202.8	--	--	2202.8	380.7	2583.5
2023	15	2185.6	--	--	2185.6	405.9	2591.5
2024	15	2132.9	--	--	2132.9	372.6	2505.5
2025	15	2091.4	--	--	2091.4	392.0	2483.4
2026	15	2046.6	--	--	2046.6	324.3	2370.9
2027	6	878.6	--	--	878.6	112.4	991.0
Subtotal	175	25159.3	--	--	25159.3	5401.6	30560.9

Annual Funding 3300 MILCON Military Construction, Air Force		
Fiscal Year	TY \$M	
	Total Program	
2010		1.6
2011		2.6
2012		11.2
2013		--
2014		207.6
2015		170.6
2016		66.3
2017		37.2
2018		273.9
2019		178.0
2020		26.0
2021		447.0
2022		249.0
2023		254.0
2024		386.3
2025		273.4
2026		103.7
2027		37.3
2028		10.9
Subtotal		2736.6

Annual Funding 3300 MILCON Military Construction, Air Force	
Fiscal Year	BY 2016 \$M
	Total Program
2010	1.7
2011	2.7
2012	11.5
2013	--
2014	205.2
2015	166.0
2016	63.4
2017	35.0
2018	252.8
2019	161.1
2020	23.1
2021	388.9
2022	212.4
2023	212.4
2024	316.7
2025	219.8
2026	81.7
2027	28.8
2028	8.3
Subtotal	2391.5

Annual Funding 3830 MILCON Military Construction, Air National Guard	
Fiscal Year	TY \$M
	Total Program
2013	0.7
2014	--
2015	41.9
2016	2.8
2017	1.5
Subtotal	46.9

Annual Funding	
3830 MILCON Military Construction, Air National Guard	
Fiscal Year	BY 2016 \$M
	Total Program
2013	0.7
2014	--
2015	41.1
2016	2.7
2017	1.4
Subtotal	45.9

Annual Funding	
3730 MILCON Military Construction, Air Force Reserve	
Fiscal Year	TY \$M
	Total Program
2017	98.0
2018	6.4
Subtotal	104.4

Annual Funding 3730 MILCON Military Construction, Air Force Reserve	
Fiscal Year	BY 2016 \$M
	Total Program
2017	92.0
2018	5.9
Subtotal	97.9

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	2/24/2011	11/28/2017
Approved Quantity	19	64
Reference	Milestone B ADM	Milestone C ADM and KC-46 Lot 5 ADM
Start Year	2015	2015
End Year	2016	2019

The Current Total LRIP Quantity is more than 10% of the total production quantity and has been increased above the Milestone B ADM approved LRIP quantity of 19 aircraft because a greater quantity is now necessary to achieve a smooth production ramp and avoid production breaks/delays on the way to FRP.

On August 12, 2016, the DAE approved the increase of LRIP quantity from 19 to 49 aircraft in the Milestone C ADM. The increase is the result of changing Lot 3 (15 aircraft) and Lot 4 (15 aircraft) from FRP Lots to LRIP Lots. On November 28, 2017, the DAE further approved an increase of LRIP quantity from 49 to 64 aircraft in the KC-46A Lot 5 ADM.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost \$M	Description
Japan	2/23/2017	1	367.4	Case JA-D-SAJ was signed on February 23, 2017 (\$183.5M), funding unique aircraft configuration development. JA-D-SAJ Amendment 1 was signed July 20, 2017 (\$183.9M), funding the first aircraft. A Letter of Offer and Acceptance for JA-D-SAJ Amendment 2 anticipated for February 2018, which will fund government furnished equipment that will be integrated into the Japanese KC-46s.
Japan	8/18/2016	0	9.0	Letter of Offer and Acceptance

Notes

Japan: The Japan KC-46A FMS case JA-D-GNW was signed on August 4, 2016, funding initial program manpower and travel. Case JA-D-SAJ was signed on February 23, 2017, funding unique aircraft configuration development. JA-D-SAJ Amendment 1 was signed on July 20, 2017, funding the first aircraft. A letter of request for JA-D-SAJ Amendment 2 was received on September 10, 2017. Amendment 2 will fund government furnished equipment that will be integrated into the Japanese KC-46s. On December 22, 2017, a \$289M contract was awarded to Boeing for the development of the exportable Japanese configuration, purchase of the first of four aircraft, and minor logistics support. Included in this award were three pre-priced options for aircrafts 2-4, bringing the total contract value to \$793M.

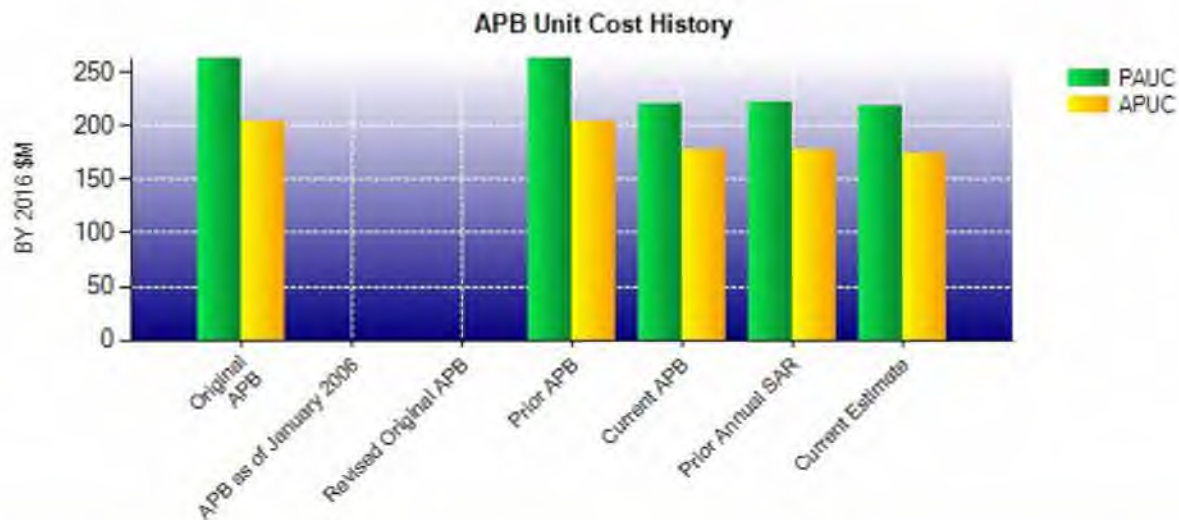
Israel: Case IS-D-GDJ was signed on September 14, 2017. This studies and analysis case funds travel and manpower support for one government engineer to assist Israel in refining program requirements and ensuring export compliance.

Nuclear Costs

None

Unit Cost

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Current UCR Baseline (Jan 2017 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	39529.1	39221.0	
Quantity	179	179	
Unit Cost	220.833	219.112	-0.78
Average Procurement Unit Cost			
Cost	30897.3	30560.9	
Quantity	175	175	
Unit Cost	176.556	174.634	-1.09
Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2016 \$M	BY 2016 \$M	% Change
	Original UCR Baseline (Aug 2011 APB)	Current Estimate (Dec 2017 SAR)	
Program Acquisition Unit Cost			
Cost	47021.2	39221.0	
Quantity	179	179	
Unit Cost	262.688	219.112	-16.59
Average Procurement Unit Cost			
Cost	35699.9	30560.9	
Quantity	175	175	
Unit Cost	203.999	174.634	-14.39



APB Unit Cost History					
Item	Date	BY 2016 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	Aug 2011	262.688	203.999	288.828	229.920
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	Aug 2011	262.688	203.999	288.828	229.920
Current APB	Jan 2017	220.833	176.556	247.813	202.823
Prior Annual SAR	Dec 2016	221.523	176.999	248.911	203.669
Current Estimate	Dec 2017	219.112	174.634	244.796	199.728

SAR Unit Cost History

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial PAUC Development Estimate	Changes								PAUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
288.828	5.789	0.000	-0.009	0.000	-45.502	0.000	-1.293	-41.015	247.813

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Production Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
247.813	-0.972	0.000	0.407	0.000	-1.240	0.000	-1.212	-3.017	244.796

Initial SAR Baseline to Current SAR Baseline (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Production Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
229.920	4.918	0.000	-0.010	0.000	-30.711	0.000	-1.294	-27.097	202.823

Current SAR Baseline to Current Estimate (TY \$M)									
APUC Production Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
202.823	-0.883	0.000	0.000	0.000	-0.973	0.000	-1.239	-3.095	199.728

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Feb 2011	Feb 2011	Feb 2011
Milestone C	N/A	Aug 2015	Aug 2016	Aug 2016
IOC	N/A	Aug 2017	Oct 2018	Feb 2019
Total Cost (TY \$M)	N/A	51700.2	44358.5	43818.4
Total Quantity	N/A	179	179	179
PAUC	N/A	288.828	247.813	244.796

The RAA date is defined as 18 aircraft in final production configuration, two spare engines, and nine ship sets of wing aerial refueling pods.

Cost Variance

Summary TY \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	5897.7	35494.1	2966.7	44358.5
Previous Changes				
Economic	+1.0	+66.2	+4.9	+72.1
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+8.6	+292.7	+34.1	+335.4
Other	--	--	--	--
Support	--	-211.0	--	-211.0
Subtotal	+9.6	+147.9	+39.0	+196.5
Current Changes				
Economic	-2.6	-220.8	-22.7	-246.1
Quantity	--	--	--	--
Schedule	+72.9	--	--	+72.9
Engineering	--	--	--	--
Estimating	+0.5	-462.9	-95.1	-557.5
Other	--	--	--	--
Support	--	-5.9	--	-5.9
Subtotal	+70.8	-689.6	-117.8	-736.6
Total Changes	+80.4	-541.7	-78.8	-540.1
CE - Cost Variance	5978.1	34952.4	2887.9	43818.4
CE - Cost & Funding	5978.1	34952.4	2887.9	43818.4

Summary BY 2016 \$M				
Item	RDT&E	Procurement	MILCON	Total
SAR Baseline (Production Estimate)	6054.7	30897.3	2577.1	39529.1
Previous Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	--	--	--	--
Engineering	--	--	--	--
Estimating	+8.5	+280.6	+37.5	+326.6
Other	--	--	--	--
Support	--	-203.1	--	-203.1
Subtotal	+8.5	+77.5	+37.5	+123.5
Current Changes				
Economic	--	--	--	--
Quantity	--	--	--	--
Schedule	+67.1	--	--	+67.1
Engineering	--	--	--	--
Estimating	-5.5	-422.1	-79.3	-506.9
Other	--	--	--	--
Support	--	+8.2	--	+8.2
Subtotal	+61.6	-413.9	-79.3	-431.6
Total Changes	+70.1	-336.4	-41.8	-308.1
CE - Cost Variance	6124.8	30560.9	2535.3	39221.0
CE - Cost & Funding	6124.8	30560.9	2535.3	39221.0

Previous Estimate: December 2016

RDT&E		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-2.6
Revised Government Test estimate to reflect updated execution plan. (Schedule)		+59.9	+65.1
Revised Direct Mission Support (DMS) estimate to reflect updated execution plan. (Schedule)		+5.1	+5.6
Revised Program Management Administration (PMA) estimate to reflect updated execution plan. (Schedule)		+2.1	+2.2
Decreased FY 2016 estimate for Below Threshold Reprogramming (BTR). (Estimating)		-9.5	-9.6
Revised estimate due to Congressional marks in FY 2016. (Estimating)		-53.6	-54.2
Revised estimate due to Small Business Innovative Research in FY 2017. (Estimating)		-8.2	-8.4
Increase in FY 2023 as a result of DoD budgetary adjustments. (Estimating)		+11.9	+13.7
Revised Aircraft Product Development Estimate to reflect updated execution plan. (Estimating)		+91.2	+97.6
Revised Aircrew Training Systems (ATS) estimate to reflect updated execution plan. (Estimating)		+0.3	+0.3
Revised Government Test estimate to reflect updated execution plan. (Estimating)		-46.3	-48.0
Revised PMA estimate to reflect updated execution plan. (Estimating)		-1.7	-1.6
Revised DMS estimate to reflect updated execution plan. (Estimating)		+17.4	+18.0
Decreased FY 2017 estimate for BTR. (Estimating)		-9.6	-9.9
Adjustment for current and prior escalation. (Estimating)		+2.3	+2.3
Revised estimate to reflect application of new outyear inflation indices. (Estimating)		+0.3	+0.3
RDT&E Subtotal		+61.6	+70.8

Procurement		\$M	
Current Change Explanations		Base Year	Then Year
Revised escalation indices. (Economic)		N/A	-220.8
Revised FY 2016 estimate for omnibus reprogramming. (Estimating)		-93.7	-97.1
Revised FY 2016 estimate for above threshold reprogramming. (Estimating)		-20.4	-21.2
Revised FY 2019 - FY 2023 estimate for DoD budget adjustments. (Estimating)		-101.1	-115.5
Revised Government Furnished Equipment Estimate Large Aircraft Infrared Countermeasures estimate due to fact-of-life execution changes and updated acquisition strategy. (Estimating)		-75.2	-92.8
Revised Thermal Curtains estimate to reflect updated acquisition strategy and fact-of-life execution changes. (Estimating)		+1.7	+1.8
Revised KY-100M estimate to reflect fact-of-life execution changes. (Estimating)		-0.3	-0.3
Revised Over and Above estimate to reflect updated execution plan. (Estimating)		-6.0	-6.5
Revised Alternate Mission Equipment (AME) Wing Pods estimate to reflect updated escalation indices. (Estimating)		-0.6	-0.6
Revised AME Other Palletized Seats estimate to reflect updated execution plan. (Estimating)		-0.4	-0.4
Revised ECO estimate to reflect fact-of-life execution changes and stable aircraft requirements. (Estimating)		-284.8	-313.1
Adjustment for current and prior escalation. (Estimating)		+40.2	+42.7

Revised estimate to reflect application of new outyear inflation indices. (Estimating)	+118.5	+140.1
Adjustment for current and prior escalation. (Support)	+8.5	+8.9
Decrease in Other Support estimate due to increase in DMS, Depot Stand-Up, and decreases in ATS, Maintenance Training Systems, PMA, Operational Site Activation, Support Equipment, and Interim Contract Support costs. (Support)	-56.9	-65.1
Revised Initial Spares estimate based on DoD budget adjustments, updated acquisition strategy, and an increase in the estimated spares requirement. (Support)	+56.6	+50.3
Procurement Subtotal	-413.9	-689.6

MILCON	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-22.7
Revised estimate to reflect reprogramming actions for Air Force. (Estimating)	-4.2	-4.3
Revised estimate to reflect updated project plan for MOB #7. (Estimating)	-95.5	-114.2
Revised estimate to reflect reprogramming actions for Air National Guard. (Estimating)	+0.7	+0.7
Adjustment for current and prior escalation. (Estimating)	+4.3	+4.5
Revised estimate to reflect application of new outyear inflation indices. (Estimating)	+15.4	+18.2
MILCON Subtotal	-79.3	-117.8

Contracts

Contract Identification	
Appropriation:	RDT&E
Contract Name:	KC-46A Engineering and Manufacturing Development
Contractor:	The Boeing Company
Contractor Location:	7755 E Marginal Way S Seattle, WA 98108-4002
Contract Number:	FA8625-11-C-6600
Contract Type:	Fixed Price Incentive(Firm Target) (FPIF)
Award Date:	February 24, 2011
Definitization Date:	February 24, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
4327.3	4831.0	4	4321.4	4824.5	4	4824.5	4824.5

Target Price Change Explanation
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to a contractual modification (P00033) signed by the Program Office and the Contractor on March 31, 2014. This contractual modification reduced the target price by \$5.9M and reduced the ceiling price by \$6.5M, due to the removal of certain Live Fire Test Assets. This contractual modification was updated in the EVM data and reduced the ceiling price of the FPIF contract from \$4,831M to \$4,824.5M.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/30/2017)	-283.0	-148.8
Previous Cumulative Variances	-133.2	-130.1
Net Change	-149.8	-18.7

Cost and Schedule Variance Explanations
The unfavorable net change in the cost variance is due to Flight Test, Air Vehicle Systems Engineering and Integration, Test Planning & Reporting, Program Planning and Management, and Air Refueling Management System.
The unfavorable net change in the schedule variance is due to Drogue Air Refueling, Flight Test, Boom Air Refueling, Management, RF Countermeasures, and Technical Publications.

Notes
The Contractor's current Estimated Price at Completion reflects the existing contract scope.

Contract Identification

Appropriation: RDT&E
Contract Name: KC-46A Engineering and Manufacturing Development
Contractor: The Boeing Company
Contractor Location: 7755 E Marginal Way S
 Seattle, WA 98108-4002
Contract Number: FA8625-11-C-6600/1
Contract Type: Firm Fixed Price (FFP)
Award Date: February 24, 2011
Definitization Date: February 24, 2011

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
66.6	N/A	N/A	136.5	N/A	N/A	136.5	136.5

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to some contract modifications for studies, and support equipment, and a required cost accounting change for Pension Harmonization.

On January 14, 2013, a modification (P00022), was issued in the amount of \$2.1M for the Cargo Restraint Alternate Location study, increasing the price of this FFP contract from \$66.6M to \$68.7M.

On October 6, 2014, a modification (P00049) was issued in the amount of \$3.1M for the Hi-Strength Pallet Locks and Movable Smoke Barrier Verification / Certification Engineering study, increasing the contract price of this FFP contract from \$68.7M to \$71.8M

On February 6, 2015, a modification (P00052) was issued in the amount of \$184K for additional support equipment, increasing the contract price of this FFP contract from \$71.8M to \$72.0M.

On September 18, 2015, a modification (P00066) was issued in the amount of \$1.0M for the Characterization of Data Exchange study, increasing the contract price of this FFP contract from \$72.0M to \$73.0M.

On December 23, 2015, a modification (P00074) was issued in the amount of \$7.3M for the Integrated Broadcast Service Common Interactive Broadcast study, increasing the contract price of this FFP contract from \$73.0M to \$80.3M.

On April 5, 2016, a modification (P00084) was issued in the amount of \$4.3M for the Characterization of Data Exchange II study, increasing the contract price of this FFP contract from \$80.3M to \$84.6M.

On April 11, 2016, a modification to the FFP contract (P00079) was issued to change the contractual EMD completion date to June 24, 2018.

On April 29, 2016, a modification (P00086) was issued in the amount of \$88K for the Phase III EMD Aircraft Data, Tolerances, and Data Rate Measurement Capabilities Study, maintaining the contract price of this FFP contract at \$84.6M.

On August 12, 2016, a modification (P00100) was issued in the amount of \$26.3M reflecting an equitable adjustment to the contract price arising from the Pension Protection Act, increasing the contract price from \$84.6M to \$110.9M.

On July 13, 2017, a modification (P00115) was issued in the amount of \$1.1M for the Mission Data File Study, increasing the

contract price from \$110.9 to \$112.1M.

On August 10, 2017, a modification (P00127) was issued in the amount of \$138K, increasing the contract price from \$112.1M to \$112.2M.

On August 18, 2017, a modification (P00119) was issued in the amount of \$7.7M for the ARO Instructor Override Study, increasing the contract price from \$112.2M to \$119.9M.

On September 15, 2017, a modification (P00112) was issued in the amount of \$834K for the APT Study, increasing the contract price from \$119.7M to \$120.7M.

On September 25, 2017, a modification (P00111) was issued in the amount of \$7.4M for the ARASQ Data Collection Study, increasing the contract price from \$120.7M to \$128.1M.

On October 17, 2017, a modification (P00118) was issued in the amount of \$8.4M for the C2 MEIS/ANGI Study, increasing the contract price from \$128.1M to \$136.5M.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Contract Identification

Appropriation: Procurement
Contract Name: KC-46A Production Contract
Contractor: Boeing
Contractor Location: P.O. Box 3707
 Seattle, WA 98214
Contract Number: FA8625-11-C-6600/3
Contract Type: Firm Fixed Price (FFP)
Award Date: February 24, 2011
Definitization Date: December 10, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
119.4	N/A	0	5384.0	N/A	34	5384.0	5384.0

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to the definitization of an Undefined Contract Action (UCA), the exercise of Lots 1 and 2, addition of Large Aircraft Infrared Countermeasures (LAIRCM) to Lots 1 and 2, and a required cost accounting change for Pension Harmonization.

On December 10, 2014, contract modification P00054 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$84.5M represents the UCA to purchase Support Equipment (SE) and Production Spares in advance of Milestone C as approved in the ADM signed on October 17, 2014.

On December 17, 2014, contract modification P00057 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$34.9M represents the Interim Contractor Support (ICS) Year 1 option.

On November 9, 2015, contract modification P00067 was signed by both the Program Office and the Contractor. This contractual modification reduced the price of the P00054 UCA by \$10.6M due to a reduction in scope.

On March 4, 2016, contract modification P00082 was signed by both the Program Office and the Contractor. This contractual modification partially definitized the P00054 UCA and reduced the price by \$1.1M.

On August 10, 2016, contract modification PZ0060 was signed by both the Program Office and the Contractor. This contractual modification completed the definitization of the P00054 UCA, reducing the price by \$15.9M.

On August 18, 2016, contract modification P00099 was signed by the Program Office. This contractual modification in the amount of \$2.814B represents the Lots 1 and 2 option exercises.

On September 15, 2016, contract modification P00053 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$99.0M represents the addition of LAIRCM for Lots 1 and 2.

On September 23, 2016, contract modification P00103 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$12.1M represents the required cost accounting change for Pension Harmonization.

On January 27, 2017, contract modification P00110 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$2.1B represents Lot 3 aircraft, spare engines, and Wing Aerial Refueling Pods.

On March 24, 2017, contract modification P00117 was signed by both the Program Office and the Contractor. This contractual modification in the amount of \$59.2M represents the ICS Year 2 option.

On July 12 2017, a contract modification (P00101) was issued in the amount of \$2.9M for a Software System Integration Lab Study.

On September 20, 2017, a contract modification (P00129) was issued in the amount of \$772K for KY-100M Integration.

On September 26, 2017, a contract modification (P00067) was issued in the amount of \$43.8M for SE.

On September 27, 2017, a contract modification (P00080) was issued in the amount of \$38.8M for KC-46 Initial Common Spares and Readiness Spares Packages in support of Production Aircraft Lots 1 and 2.

On December 21, 2017, a contract modification (P00132) was issued in the amount of \$6.7M for an UCA for subscriptions and software licenses.

P00067 and P00080 were issued as Fixed-Price Incentive Fee efforts. The Program Office has not yet received a Contract Performance Report for these efforts.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Contract Identification

Appropriation: RDT&E
Contract Name: KC-46A Aircrew Training Systems - Engineering and Manufacturing Development
Contractor: FlightSafety Services Corporation
Contractor Location: 10770 E. Briarwood Ave. Suite 100
 Centennial, CO 80112-3807
Contract Number: FA8621-13-C-6247/0
Contract Type: Fixed Price Incentive(Firm Target) (FPIF), Firm Fixed Price (FFP)
Award Date: May 01, 2013
Definitization Date: May 01, 2013

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
78.4	86.6	8	78.4	86.6	8	86.6	86.6

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (2/23/2017)	-12.7	-13.9
Previous Cumulative Variances	-12.7	-13.9
Net Change	+0.0	+0.0

Cost and Schedule Variance Explanations

None

Notes

The Aircrew Training System contract (FA8621-13-C-6247) contains both FPIF and FFP CLINs. \$79.2M is under the FPIF portion of the contract, and \$7.4M is FFP. While EVM data is not required on the FFP efforts, the Contractor has included actual performance in the monthly EVM data. In an effort to ensure the EVM source data aligns with the contract, both contract efforts have been consolidated for reporting purposes.

In June 2015, the Program Office completed an updated Estimated Cost at Completion (EAC) to incorporate performance adjustments that occurred after the completion of the CY 2014 POE. The most likely PM EAC is now \$111.4M, and is inclusive of contractor performance and risk. The liability of the government remains at the ceiling price of \$86.6M. No additional budgetary funds have been requested for this increased EAC.

Contract Identification

Appropriation: MILCON
Contract Name: KC-46A MILCON (McConnell AFB)
Contractor: Archer Western Aviation Partners
Contractor Location: 929 W. Adams St.
 Chicago, IL 60607-3021
Contract Number: W912DQ-14-C-4006
Contract Type: Firm Fixed Price (FFP)
Award Date: May 22, 2014
Definitization Date: May 22, 2014

Contract Price

Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
143.7	N/A	N/A	152.6	N/A	N/A	152.6	152.6

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to 115 contract modifications that have been awarded, increasing the original contract price from \$143.7M to \$152.6M as of December 21, 2017.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

This contract will be a Design-Bid-Build of the 3-Bay General Purpose Hangar, Aircraft Parking Apron, 2-Bay Corrosion Control/Fuel Cell Hangar, General Maintenance Hangar, and Composite Maintenance Shop located at McConnell AFB, Kansas. The contractor has 990 calendar days from the notice to proceed to complete the work.

Contract Identification

Appropriation: RDT&E
Contract Name: KC-46 Maintenance Training System
Contractor: The Boeing Company
Contractor Location: 6200 JS McDonnell Blvd.
 St. Louis, MO 63134
Contract Number: FA8621-16-C-6390
Contract Type: Firm Fixed Price (FFP)
Award Date: July 06, 2016
Definitization Date: July 06, 2016

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
45.3	N/A	N/A	45.8	N/A	N/A	45.8	45.8

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to P00001 which added \$500K to the unpriced Cost Reimbursable No Fee Travel CLIN.

Cost and Schedule Variance Explanations

Cost and Schedule Variance reporting is not required on this (FFP) contract.

Notes

On July 6, 2016, the KC-46 Maintenance Training System (MTS) Firm Fixed Price (FFP) contract was awarded to The Boeing Company (Training Systems Group - St. Louis, MO).

On August 1, 2016, P00001 added \$0.500M to the unpriced Cost Reimbursable No Fee Travel CLIN and exercised the Training Systems Requirements Analysis Update CLIN for \$0.044M, resulting in the increase from the Initial Contract Price to the Current Contract Price Target.

On September 22, 2016, P00002 incrementally funded the KC-46 MTS contract for \$24.408M.

On November 17, 2016, P00003 was an administrative modification to the KC-46 MTS contract.

Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	0	0	4	0.00%
Production	0	0	175	0.00%
Total Program Quantity Delivered	0	0	179	0.00%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	43818.4	Years Appropriated	14
Expended to Date	7840.4	Percent Years Appropriated	58.33%
Percent Expended	17.89%	Appropriated to Date	16099.2
Total Funding Years	24	Percent Appropriated	36.74%

The above data is current as of January 31, 2018.

Total expended to date includes \$315M in Air Force (3300) MILCON expenditures.

Operating and Support Cost

Cost Estimate Details

Date of Estimate:	September 15, 2017
Source of Estimate:	POE
Quantity to Sustain:	166
Unit of Measure:	Aircraft
Service Life per Unit:	40.00 Years
Fiscal Years in Service:	FY 2017 - FY 2069

The KC-46A Program has 166 Primary Aircraft Authorized (PAA) and 13 back-up aircraft. The O&S estimate is based on 166 PAA.

Sustainment Strategy

The KC-46A sustainment strategy will use United States Air Force (USAF) Two-Level logistics concepts supported by the USAF maintenance and logistics support structures and Organizational, Maintenance, Installation, and Training data rights. The sustainment strategy will use a Contractor Supported Weapons System concept during EMD, transitioning to an organic/performance-based logistics posture as soon as sustainable organic capabilities are established during production. Organizational-level maintenance will be done by Air Force personnel with assistance of contractor Field Service Representatives and supported by contractor Logistics Support Representatives beginning with Initial Operational Test and Evaluation. The most critical organic capabilities are planned for incremental stand-up during Interim Contractor Support. The Depot-level (C-Check) capability stand-up is targeted not later than two years after first production aircraft delivery. Subsequent depot operations will expand incrementally based upon the Depot Maintenance Activation Working Group developed activation plan. The KC-46A Program Office will closely coordinate with the Air Force Sustainment Center to facilitate planning, execution, and evaluation of the C-Check process and the follow-on stand-up of commodity support capability.

Antecedent Information

The antecedent system is the KC-135R&T.

KC-135R&T costs have been normalized to reflect the average of 670 annual flying hours per aircraft in the KC-46 Milestone C SCP. KC-135R&T average annual cost per aircraft reflects actual FY 2016 costs reported in the Air Force Total Ownership Cost (AFTOC) system (budget constrained). Most FY 2016 costs reflect the current state of KC-135R&T; however, there are a few exceptions, such as flying hour costs, where the FY 2016 KC-135R&T costs are lower than in previous years.

Annual O&S Costs BY2016 \$M			
Cost Element	KC-46A		KC-135R&T (Antecedent)
	Average Annual Cost Per Aircraft		Average Annual Cost Per Aircraft
Unit-Level Manpower		5.042	3.277
Unit Operations		2.831	3.098
Maintenance		5.249	5.107
Sustaining Support		1.099	0.097
Continuing System Improvements		0.863	0.150
Indirect Support		--	--
Other		--	--
Total		15.084	11.729

KC-46A costs shown in comparison with actual costs for the antecedent system, KC-135 R&T, reflect estimated average annual cost per aircraft.

The "Annual O&S Costs BY 2016\$M" comparison above excludes "Indirect Support" costs because these costs are not allocated to KC-135 R&T-specific Program Elements in the AFTOC system. However, these costs are included in the KC-46A Total O&S costs.

While the comparison is to FY 2016 actual KC-135 R&T costs, the Air Force projects KC-135 R&T O&S costs to increase, surpassing projected KC-46A O&S costs. This projected increase is not reflected in the "Annual O&S Costs BY 2016 \$M" table above. The KC-46A Average Annual Cost Per Aircraft above is a life cycle steady state average that includes price escalation. The KC-135 R&T Average Annual Cost Per Aircraft above is a FY 2016 actual cost, and therefore does not include future price escalation.

This comparison is also not adjusted for the capability differences that exist between the two systems nor does it recognize the cost savings that may be realized due to the commerciality of the KC-46A aircraft (the KC-46A is derived from a commercial Boeing 767 variant). Because the 767 was designed to be cost competitive in the commercial marketplace, it is anticipated that the aircraft's commercial efficiencies will facilitate improvement in the military operational costs for the KC-46A. In addition, the KC-46A has significantly more aerial refueling offload capability per aircraft compared to the KC-135 R&T and is a multi-role aircraft with significant secondary missions associated with airlift and aeromedical evacuation. The KC-46A can also provide boom/drogue refueling on the same sortie, and has enhanced net ready and survivability capabilities.

Item	Total O&S Cost \$M			
	KC-46A			KC-135R&T (Antecedent)
	Current Production APB Objective/Threshold		Current Estimate	
Base Year	125041.0	137545.1	121094.0	N/A
Then Year	220824.2	N/A	226645.6	N/A

Total KC-46A O&S cost is not a simple extrapolation of the KC-46A average annual cost per aircraft shown in the preceding "Annual O&S Costs BY 2016 \$M" table due to the exclusion of "Indirect Costs" associated with the KC-135 R&T. The KC-46A POE reflects the following assumptions: 166 PAA, 40-year service life, steady state beginning in FY 2029, and peacetime operations tempo with average annual flying hours of 489 hours per PAA through March 2021, and 670 hours per PAA from April 2021 and beyond. The KC-46A SCP is based on legacy fleet history where KC-46A specific data is not available. A comparable total O&S cost for the antecedent system, KC-135 R&T, is not available.

Equation to Translate Annual Cost to Total Cost

Total KC-46A Aircraft O&S (BY 2016\$M) = [unitized cost (\$15.084M average steady state) x 30 steady state years x 166 PAA] + Total O&S Indirect Support costs (excluded from the unitized cost comparison above to allow for a normalized comparison) + phase-in and phase-out costs (as aircraft are fielded and later retired).

$$\$121,094.0\text{M (BY 2016\$M)} = \$75,118.9\text{M} + \$17,848.4\text{M} + \$14,663.0\text{M} + \$13,463.7\text{M}$$

O&S Cost Variance		
Category	BY 2016 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	125041.0	
Programmatic/Planning Factors	-1326.0	Schedule and planning changes affecting Depot Maintenance, Simulator support, modifications, and manpower.
Cost Estimating Methodology	289.6	Revised Data and Technical Publications methodology from analogy to program specific build-up.
Cost Data Update	-1067.7	Estimating refinements based on new AFTOC data and cost planning factors.
Labor Rate	1808.4	Changes in labor rates
Energy Rate	-3748.4	Decrease in fuel price per gallon
Technical Input	97.1	Content changes and new requirements for Subscription Services
Other	0.0	
Total Changes	-3947.0	
Current Estimate	121094.0	

Disposal Estimate Details

Date of Estimate: September 15, 2017
Source of Estimate: POE
Disposal/Demilitarization Total Cost (BY 2016 \$M): Total costs for disposal of all Aircraft are 16.2

The KC-46A CY 2017 POE assumed that upon retirement at the end of the 40-year service life, each KC-46A aircraft would enter flyable storage at the Aircraft Maintenance and Regeneration Group and will be disposed after a period of five years.